



बिहार गजट

असाधारण अंक

बिहार सरकार द्वारा प्रकाशित

9 चैत्र 1933 (श0)
(सं0 पटना 108) पटना, बुधवार 30 मार्च 2011

नगर विकास एवं आवास विभाग

अधिसूचना

29 मार्च 2011

सं0 4 (न)-13वें-वित्त आयोग-01/2008-1800-भारत सरकार के 13वीं वित्त आयोग द्वारा की गई अनुशंसाओं में "सामान्य अनुदान हेतु प्रोत्साहन कार्य-निष्पादन रूपरेखा" विषय कण्डिका 10.160 (ix) के अनुसार 10 लाख या उससे अधिक की आबादी वाले पटना नगर निगम में फायर हजार्ड रिस्पॉस एण्ड मिटिगेशन प्लॉन (Fire Hazard Response and Mitigation Plan) लागू किया जाना है। गृह रक्षा वाहिनी एवं अग्निशाम सेवाएं से प्राप्त संलग्न योजना को पटना नगर निगम के लिए अधिसूचित किया जाता है।

बिहार-राज्यपाल के आदेश से,

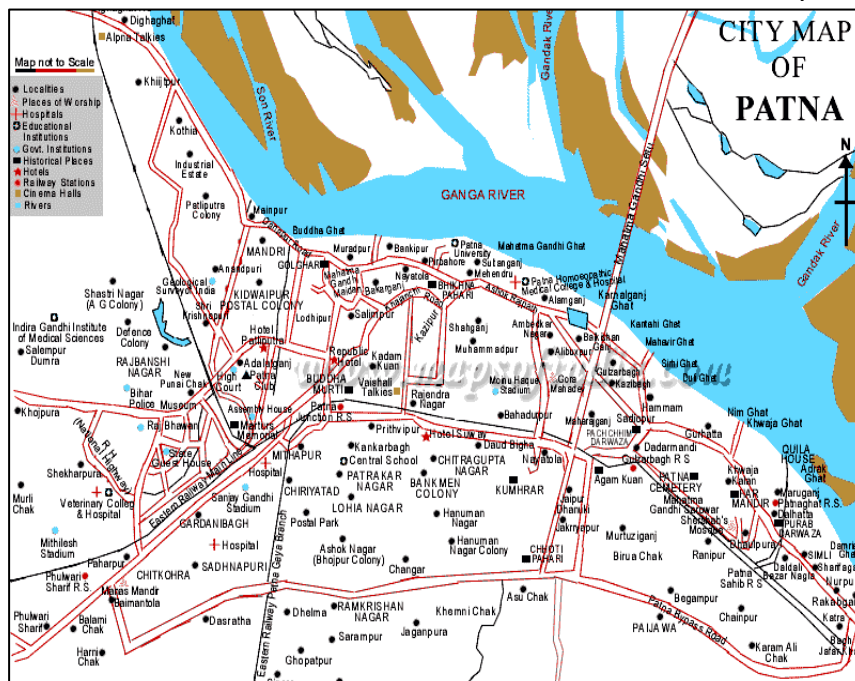
अरविन्द कुमार सिंह,

सरकार के उप-सचिव-सह-निदेशक।

1.0 Background of the City

Patna, the capital of Bihar state, is a city with an ancient past. It lies on the south bank of the Ganga River and has three largish rivers in its vicinity. Today Patna is an important business centre of eastern India. It also invites a lot of tourists to the city and which acts as a gateway to the world famous Buddhist and Jain pilgrimage centers. The Patna urban region also has industries especially at Hajipur and Sonapur where rail facilities are well developed.

The administrative divisions of Bihar is based on the north south division by the River Ganga.



However the existing Patna Regional Development area is within three districts (Patna Saran and Vaishali) which belong to three different administrative divisions which would eventually cause difficulty in access of funds for the developmental projects. There is a functional relationship between the three districts and therefore a regrouping of these districts into a single administrative division is ideal for the efficient functioning of the Patna Regional Development Authority (PRDA).

The area of jurisdiction of PRDA covers 234.70 Square Kilometers comprising of portions of the districts of Patna, Saran and Vaishali. The PRDA area straddles the River Ganges with the portion of Patna District lying south of the river and the Districts of Saran and Vaishali lying on the northern banks. The 234.70 sq.km of PRDA area comprises of the following:-

a	Within Patna district	The Patna Urban Agglomeration area and Fatwah Nagar Panchayat area, Maner Nagar Panchayat area and 104 villages.
b	Within Saran District	Sonepur Nagar Panchayat Area and 19 villages around Sonepur Nagar Panchayat area.
c	Within Vaishali District	Hajipur Nagar Parishad area and 99 villages around Hajipur Nagar Parishad area.
d	Constituents of Patna Urban Area	The PUA area is entirely within Patna District and comprises of Patna Municipal Corporation Area (PMC), and its outgrowths of Patliputra Housing Colony, Digha-Mainpura, Sabazpura,

		Khalilpura and Badalpura; Phulwarisharif (Nagar Panchayat), Danapur Nizamut (Nagar Parishad), Danpur Cantonment Area, Khagaul (Nagar Parishad), and Saidpura (Outgrowth of Khagaul). The PUA comprises of 146.16 sq. km of land.
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Landuse Assessment

Existing Land Use within Patna Urban Agglomeration Area

	Landuse	Area (in Ha)	Total Area (in Ha)	Percentage
1	Residential		8230	60.88
	Residential (planned)	438		
	Apartments	202		
	Residential/organic/unplanned	7548		
	Slums	112		
2	Commercial		298	2.20
	Commercial	134		
	Commercial (predominant ribbon development)	155		
	Agriculture Marketing Yard	9		
3	Public - Semi Public		651	4.82
	Administrative	211		
	Educational	236		
	Medical	154		
	Religious	32		
	Graveyards and Cremation Grounds	18		
4	Recreational		212	1.56
5	Industrial		238	1.76
6	Transportation		1050	7.77
7	Water Bodies		164	1.14
8	Agriculture		2591	18.88
9	Vacant Land		145	0.99
	TOTAL LAND		13579	100

Source: Interim Report of Master Plan 2021, DCL, 2006

Land in use for transportation and recreation is low at Master Plan level. They are a little better at zonal and neighbourhood levels. Land in industries is also low as household industries are part of mixed uses and most organized industries are within the PRDA outside the PUA. Industrial uses are nevertheless being infused in the PUA in addition to lungs spaces and quality institutional and commercial usage. Within the PMC several established industrial units do exist.

Within the PUA the most densely populated wards are along the banks of river Ganga. (301 - 900 persons per ha). The wards with lower density are along the southern and western side where the density varies from 100 to 300 persons per ha. The predominant land use in the PUA is residential which constitutes 60.88% of the total area. Of this 91.7% is unplanned. About 52% of the commercial land use is predominant ribbon development along the major roads.

Within the PMC area, mixed land use dominates along all the major arterial roads. Most of the Government and other Public Sector Undertakings offices are located in the Western part of city. There is a predominance of educational uses and Social infrastructure facilities whereas recreational use constitutes only 1.56%, and industrial use only 1.76%.

Constraints of Growth of the PUA

The PUA being surrounded by three rivers has a constraint of growth on the northern side due to River Ganga, southern side due to River Punpun and western side due to River Sone. Moreover the topography of Patna is like a saucer due to the surrounding three rivers and thus drainage of the city is a major problem, with pumping of water as the only solution at present. The city is thus prone to flooding. The natural growth of Patna has been towards the west. The older part of Patna or the core is on the East side of the city (south of the river). This core area faces problems of overcrowding, which has lead to enormous pressure on the physical infrastructure and to traffic congestion. The newer development areas lying in the central and western part of Patna comprise of both plotted development and apartment houses. The apartments in the newly developed area are a strain on the existing infrastructure, as the upgradation of physical infrastructure has not been done in proportion to the increase in population. This has lead to problems of water supply, sewerage, drainage, solid waste management, parking, etc.

On the southern part of Patna there are low lying areas lined along the bypass road, which again cause a constraint to the development of the area. These areas are being presently used for dumping of solid waste.

Demographic Profile

PUA Area had a population of 16.98 lakhs as per the 2001 Census while the PMC had a population of 13.66 lakh (2001 Census). The growth of population in the PUA has increased rapidly in 1991-2001. Thus, using the 1991-2001 decadal growth rate as an indicator, the population of the PUA is expected to be 22.50 lakhs in the year 2011 and 28.01 lakhs in the year 2021. In addition the floating population who commute from the districts to the PUA each day is expected to be 3.00 lakhs by 2021 against around 2.00 lakhs at present - the population of the PMC constitutes 80% of the population of the PUA.

The density of population of the PMC is 137.40 persons per hectare (PPHa). The next highest density is of Khagaul NPP, Phulwarisharif NPP and Digha-Mainpura NPP areas respectively. The areas with high growth rate, which varies from 48-73%, are Saidpura OG, Khalilpura OG, Digha-Mainpura OG, Danapur NPP, Phulwarisharif NPP, the PMC, and Sabazpura OG. The extraordinary growth rate of Saidpura is due to the increase of its area. The growth rates of the outgrowth areas exceed that of the PMC.

Economic Characteristics

The total workers population of PUAA was 25.2% of its total population in 2001. The male worker population was 3.8 lakhs (41.4%) and that of females it was 0.45 lakhs (5.8%). This is less than the percentage of workers population in the Bihar state which was 33% in 2001. This indicates that 74.8% of the population is dependent. It also indicates a high percentage of part time and supplemental jobs, common among those below the poverty line.

Among workers, 77% are in the other workers category which includes offices/institutional workers and business. The characteristics of employment of the main other workers include:

a) Trade and Commerce

Patna is an important commercial center and due to its central position at the junction of the three rivers it has the additional advantage of transport of goods by river. Other trade centers within the PUA are located in Danapur, Khagaul, Phulwarisharif and its surrounding areas. The commercial establishments are lined along the major roads of the PUA area.

The most important commodities manufactured, imported and exported in PUAA are shown in the table below:

Name of Settlement		Most Important Commodity		
		Manufactured	Imported	Exported
a	Patna Municipal Corporation area	Electronic goods	Vegetables	Food grains
b	Danapur Nagar Panchayat area	Shoes	Shoes	Iron
c	Phulwarisharif Nagar Panchayat area	Cotton	Yarn	Cotton

Source: Urban Basic Services for the Poor: Patna District of Bihar, NIC, 2003

The municipal corporation area comprises of large business quarters namely, Marufganj, Masurganj, Mirchiyaganj, Maharajaganj, etc. Within the PMC there are several wholesale markets for vegetables and agricultural goods but none of them have been planned nor do they have any waste management systems. This leads to congestion of traffic, mismanagement of solid waste disposal system, and chaos within the city area. The agricultural market is also placed at the eastern tip of the town and this causes major congestion on the bypass road as the trucks are parked for delivery of goods which again leads to congestion on the bypass road.

The commercial establishments within the city are mainly lined along the arterial and major roads and there is extensive mixed land use of commercial and residential use throughout the city.

b) Industries

Patna had been famous in the past for its handicraft which has commanded respect of foreign markets on account of their finish, generally attributable to master craftsmen who have exhibited their skill from generation to generation. Besides, potters, carpenters, blacksmiths, coppersmiths and goldsmiths have been carrying on their traditional occupations both in rural as well as urban areas, to earn their living.

However, under the impact of modern economy, these activities are static. The large industrial establishments include:

- ShriLakshmi Cold Storage Ltd., Patna Municipal Corporation
- Pradip Lamp Works, Patna Urban Agglomeration
- The Bihar Cotton Mills, Patna Urban Agglomeration (Phulwarisharif)
- Shri Baidynath Ayurvedic Bhavan Ltd. (Patna Urban Agglomeration)
- Hindusthan Manufacturing & Industrial Corporation Ltd., (Phulwarisharif)
- Ambuja Electocasting Ltd. Patna Municipal Corporation
- Bata India Ltd. Bataganj, Patna Municipal Corporation
- Modi Steels Ltd. Patna Municipal Corporation

There are also several brick kilns lined along the bypass road. The list of registered industries in the PUA area show a preponderance of household and cottage units interspersed over the core and intermediate locations of Patna.

The first Software Technology Park of Bihar has been developed at Patna by the Bihar State Electronics Development Corporation Limited (BSEDC), the nodal agency for development of IT industry in the State. The Govt. of Bihar is formulating and implementing various policy initiatives and specialized infrastructure projects to place the State on the IT map of India. Setting up of an Information Technology Park (ITP) in the first phase in Patna, is one of them.

Patna has convenient road, rail and air connectivity with all parts of the country as well as the bordering countries. The ITP of Patna is located in the fifteen storied Biscomaun Tower, adjacent to the historic Gandhi Maidan and the Ganges. It has all the ingredients to act at a catalyst for the growth of IT Industry in the State. The salient features of the Software Technology Park of Patna include:

- Development by credible developers and designed by reputed architects, employing quality driven construction practice.
- Location in the heart of the Central Business District.

The Biscomaun Tower is landmark of the City with excellent specialised IT and social infrastructure facilities, ensuring “ready to move” and “quick to operate” opportunities. However the new IT Park would be near the airport in about 50 hectares of land.

Urban Environment**Physical Attributes**

Patna district can be divided into two natural areas comprising of:-

A narrow strip of somewhat high land about 8 kms wide along the southern bank of the Ganges having very fertile soil. This is where the PMC lies. The remaining portions are alluvial fertile plains.

Vegetation

The land in the district is too fertile to be left for wild growth. The district is devoid of any forest wealth of consequence. The alluvial contents of land yields rice, sugarcane and other food grains. The area under cultivation is studded with mango orchards and bamboo clumps. In the fields adjoining the Ganges, weeds such as ammannia, citriculari, hygrophile and sesbania grow. But palmyra and date palm and mango orchards are found near habitations. Dry shrub jungles are sometimes seen in the villages away from the rivers. Trees commonly seen are bel, siris, jackfruits and red cotton.

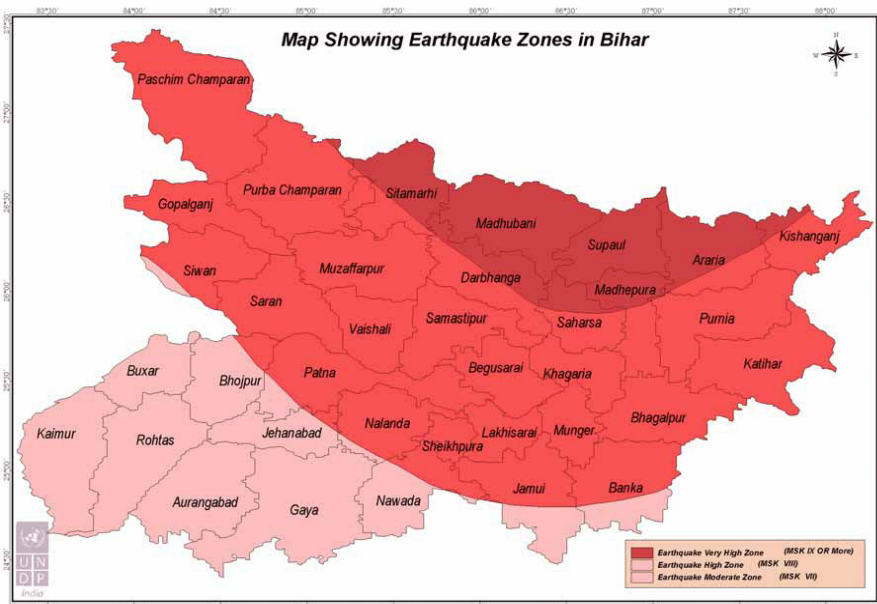
Climate and Rainfall

The climate of Patna varies from 43 °C – 30 °C during the summers and 21.4 °C – 5 °C during the winters. The precipitation in Patna is 1,100 mm during the months of June to September. It receives medium to heavy rainfall in the monsoon. Relative humidity can go up to 100% during summer.

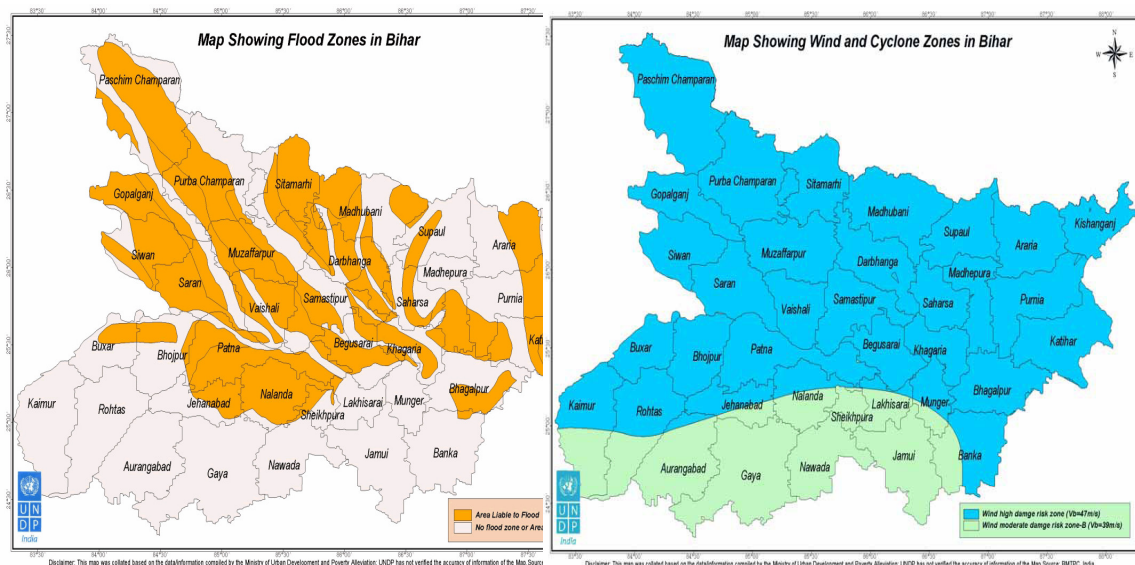
Natural Hazards

Patna lies in zone IV of the earthquake zones, which is a high-risk zone. Therefore the development controls in the area requires earthquake resistant buildings.

Patna also falls in the risk zone for floods. A series of bund/embankments have been constructed along River Punpun to control the floodwaters. During the monsoons the spillover from River Ganga tends to flood Patna and cause spread of disease. Therefore there is need to



channelise the river and to devise and implement a proper disaster mitigation plan. Apart from being flood prone, Patna is also at risk due to cyclones as it lies in the wind high damage risk zone.



2.0 Objective of Preparation of Fire Hazard Mitigation Plan

The key objectives for preparation of this City Fire Hazard Response and Mitigation Plan for Patna are:

1. To have a document which gives a comprehensive idea about Patna in the context of fire hazard response
2. To have a concise document for all stake holders (Government, PMC, other services providers, NGOs, CBOs, common people) to know the vulnerabilities and risks of the city to fire disasters
3. To develop a ready reckoner for all the stake holders containing the roles and responsibilities, contact details and the pre-determined plan of actions (Standard Operating Procedures) for Fire Hazard Response and Mitigation Plan with intra and inter-organizational well coordinated effort
4. To prepare a document for various stakeholders in disaster management for assessing their needs for training and capacity building
5. To help stakeholders in prioritising and planning activities (e.g. developing new policies and legislations, organizational/institutional strengthening, undertaking research, developing realistic plans for pre-fire hazard prevention and mitigation activities, establishing committees and networks, strengthening early warning and information dissemination systems, preparing for response during fire disaster and post-disaster activities
6. Mainstreaming fire hazard response and mitigation into all developmental activities to make them sustainable

The hazard mitigation endeavours start with *pre-event* actions for prevention, mitigation and preparedness. Immediate response is anticipated *during* occurrence of a disaster. On the other hand, the *post-disaster* steps account for rehabilitation, reconstruction, gathering of information and reconciliation.

During the process specific roles for planning, implementation and monitoring of the proposed mitigation measures have been defined in terms of

1. Awareness generation, Training and Capacity building of people at all levels (from administration to grass root level)
2. Strengthening and improvement of existing infrastructure
 - Control Room
 - Water Supply
3. An effective Information Dissemination System
4. Enactment and enforcement of legislations

3.0 Existing arrangements for addressing fire hazards

Due mainly to the ignorance of people, damages/losses due to Fire are common in city life. In most of the cases, fire becomes a considerable hazard in the congested market places where inflammable articles are used, sold or stored violating the related rules. Domestic fire is also very common but the losses are comparatively small. In both the cases of domestic or commercial fires, small fire starts from short circuit or negligent act of some person and then spreads out to adjoining places giving it a big shape. When fire becomes bigger and uncontrollable, emergency evacuation of men as well as materials becomes necessary but it also gets disturbed or becomes impossible due to want of adequate spaces or alternative escape routes in the building. So, risk of disaster due to fire remains inherent in the very construction or use of the building in most cases apart from the fact that preventive tools as fire extinguishers, sand, gunny bags, etc. are not kept ready in hand as preparedness measure. Notwithstanding occurrences of so many fire disasters, even emergency contact numbers of Fire Services Stations are not kept by majority of the people.

The Bihar Fire Services Act 1948 forms the basis of operations of services. The primary responsibilities in the context of handling fire hazards are as follows:

- 1 Extinguishing fires and performing rescue jobs to save lives and properties of public from fire and other calamities
- 2 Recommendation in favour of fire and life safety measures in different types of high risk buildings/commercial establishments for achieving adequate fire precautions
- 3 Increasing public awareness in terms of fire safety through public education, training, demonstration and other programs
- 4 Rendering services like dewatering jobs, in water logged areas, deployment of fire service on stand-by duty on different occasions like big exhibitions, fairs, VIP visits, etc.

The existing system is basic and not in line with prescribed standards. At present there are 6 fire stations in Patna – in reality there are 4 functional stations; these are:

- Lodipur – near New Patna Police Lines
- Kankarbagh – near Kankarbagh Police Station
- Phulwarisharif – this station does not have any land or buildings and is being serviced from the Kankarbagh Station
- Patna City – near Anand Cinema Hall
- Danapur
- Old Secretariat – this is under construction

The staff position in these stations is limited. The staff availability is as follows:

Position	Sanctioned	Existing	Vacant
Fire Station Officer	5	3	2
Station Officer	3	2	1
Leading Fire Man	15	15	0
Havaldar Driver	13	10	3
Fireman/Driver	2	6	4(on contract)
Fireman	65	38	27

The existing equipment and the shortage as per norms is summarized below:

Type of Equipment	Existing	Norm	Shortfall
Water Tender	12	1 per 50,000 population	27
Foam Tender	3		
Rescue Tender	1	1 per 3 lakh population	4
Jeep Tender	6		
Portable Pump	5		

Fires are common and in fact, more than 100 instances is the annual average. In Patna alone, the details in the last 5 years are as follows:

Year	Number of fires
2005	551
2006	480
2007	374
2008	440
2009	456
2010	563

There is need to augment the fire services not just in terms of equipment but also manpower to meet the growing needs of the city. Further, there is need to augment capacities to deal with incidents in high rise buildings that are becoming increasingly common.

4.0 The Road Ahead for the Holistic Fire Mitigation Plan

To facilitate sustainable economic growth through Fire hazard risk reduction and mitigation, the following themes are envisaged:

1. Ensuring that existing and upcoming industrial assets and infrastructure are fire disaster-resistant
2. Ensuring proper siting of industrial establishments considering hazard parameters
3. Making industrial processes and procedures inherently safe

4. Ensuring that transportation, storage handling and usage of Chemicals and other hazardous raw materials does not pose a threat to the nearby areas and environment
5. Development of on-site and off-site Fire Mitigation Plans by industries in association with the City / District administration
6. Conducting Mock-drills at regular intervals to determine the efficacy of the mitigation plans
7. Preparation of inventory of corporate resources
8. Large-scale association with awareness generation initiatives aimed at building the knowledge, attitude and skills of the common people for a safer habitat
9. To shift from relief-centric approach to a pro-active assault on vulnerabilities through risk management measures and capacity building of industrial personnel
10. Assessment and retrofitting of existing industrial infrastructure
11. Training of core team of Structural Engineers for advising member industries on requisite mitigation measures
12. Networking knowledge on best practices and tools for effective fire disaster management
13. Development and implementation of appropriate risk transfer mechanisms

The Government of India, along with the other stake holders including the corporate sector, have reaffirmed their commitment and resolve to achieve the object of moving towards a disaster resilient and safe nation. The task is arduous and the challenge ominous. However the roadmap is well defined and clear. No efforts will be spared and no constraint would be allowed to impede the progress towards creating a safe and disaster-free nation and the challenge thrown by the successive fire disasters will be converted into an opportunity for further strengthening disaster risk management measures.

5.0 Fire Hazard Mitigation Measures for Patna

Any disaster needs to be tackled through a sequence of long term mitigation measures and short term action plans. The process of Fire Hazard Mitigation will include simultaneous actions for improvement of infrastructure along with education, awareness generation, training, capacity development, better preparedness, knowledge sharing in terms of disaster risk management and recovery among all people at community, district and state levels. Strengthening of disaster management information system for accurate and timely dissemination of warning at national, state, district and local levels is also an essential task.

Goals of Mitigation Strategy

- To substantially increase public awareness of disaster risk so that the public demands safer communities to live and work; and
- To significantly reduce the risks of loss of life, injuries, economic costs, and destruction of natural and cultural resources that result from disasters

Fire Hazard Mitigation being an all-encompassing and multi-disciplinary activity spanning across all the sectors of development, a coordinated action in conjunction with all stakeholders including the corporate sector is needed for overcoming the vulnerabilities and minimizing the risks.

6.0 Role of Bihar Fire Services in Fire Hazard Mitigation

In view of the vulnerabilities and the risk identified in the earlier sections, the proposed/adopted mitigation measures have been discussed below:

1 Awareness generation, Training and Capacity building of people at all levels (from administration to grass root level)

From various fire incidents in recent times in city, it is clear that there is need for effective coordination among all involved agencies for efficient response. Therefore decentralized awareness and capacity building is the best possible way for fire risk reduction and hazard response. There are plans to develop and implement a systematic awareness and capacity building programme with a special focus on fire mitigation measures. The awareness creation will include various campaigns providing trainings to sensitise and inculcate concepts about disasters, safety measures, etc. among civic police volunteers, school and college students, teachers, governmental organizations and NGOs. The proposed calendar for the different stakeholders is as follows:

Target Group	Name of Capacity Building Program	Key Information to be provided
City Representative (72 numbers)	Sensitization program for Mayor and other Elected Representative	City Disaster Policy issues and formation of City Disaster Management Committee, roles and responsibility distribution etc.
Representative of Different Departments (Fire, Police, civil Defense, Power etc)	Inter sectoral co-ordination meeting for any fire hazard prevention	All relevant departments need to decide their roles and responsibility in case of fire and emergency.
PMC departmental key officials	Sensitization program for Key officials of different departments of PMC	Major Disaster of City, fire response and preparedness Respective department level Fire hazard response plan preparation
Town Planners/ Engineer/ Architects	Sensitization of Town Planner on Techno-legal regime	Issues related with Fire Prevention in Hazard Resistant Technology
Civic Police Volunteer	Disaster Risk Reduction Training including fire hazard response and mitigation	Mock Drill on fire fighting and rescue techniques

School level Training (municipal schools in PMC area)	Disaster Risk Reduction Training including fire hazard response and mitigation	Mock Drill on fire prevention and rescue techniques
Municipal Health Workers/ Sanitary workers/ SHG members	Disaster Risk Reduction Training including fire hazard response and mitigation	Fire hazard preparedness and response
Knowledge Institutions/ colleges	Disaster Risk Reduction Training including fire hazard response and mitigation	Mock Drill on fire fighting and rescue techniques
Slum level (Slum pockets of PMC area)	Disaster Risk Reduction Training including fire hazard response and mitigation	Mock Drill on fire fighting and rescue techniques Preparation of De-centralized Slum disaster Management Plan

For formulating an effective fire mitigation plan, evacuation drills and mock drills are necessary for avoiding severe loss when the fire hazard actually strikes. The following significant modules for fire hazard mitigation & capacity building programme identified are as follows

Module for fire risk reduction and management	Methodology
Services rendered by Emergency Services provider departments (Fire & Emergency Services, Police, Civil Defense, Patna Municipal Corporation etc.) during and after disaster. Causes and Prevention of Fire. (Lecture).	Audio visuals, Interactive session, mock drill
Emergency Information & Warning, Measures for Fire Prevention, Protecting houses/schools from fire hazard, De-activating live Electrical Lines, Simple fire prevention tips, Uses of fire protection equipments & tools (e.g. Fire Alarm). (Lecture & Demonstration).	Audio visuals, Interactive session, mock drill
Emergency Evacuation of School Building – -Search & Rescue operation from Ground and upper (1st /2nd) Floors / Roof. Uses of Simple Rescue Tools and Equipments – Ropes, Liver, Jack, Pulley, Stretcher, Ladder	Audio visuals, Interactive session, mock drill, group work

etc. Control of Small Fire, use of different kinds of Fire Extinguishers. (Lecture, Demonstration & Practical).	
Institution wise Fire Disaster Management Plan	Group work

The Bihar Fire Services undertakes fire safety and awareness weeks every year. In this week advertisements are released on various issues of fire safety including 'do's and don'ts' in response to fires.

2 Strengthening and improvement of existing infrastructure

Infrastructure improvement has been examined in terms of real time management of any fire hazard in the region. For effectuating better services and improving the efficacy level:

- In order to improve the response time to 3-7 minutes, there is need to increase the number of fire tenders. Even by the 2001 population standards, there is a shortage of 27 fire tenders. Further to reduce the response time, there is also need to increase the number of fire stations. 7 new fire stations should be constructed as follows:
 - Sipara Area
 - Patliputra Industrial Development Area
 - Malsalami Area
 - Agamkuan Area
 - Fatuha Industrial Development Area
 - Bihta CTI (a Fire Services Training Institute is under construction here)
 - Khagaul Area

For these fire stations, there is need to procure equipment. The minimum equipment that is needed includes 2 Advanced Foam Tenders and 12 Water Tenders Type B. For this **INR Rs. 400 lakh** is required.

- The Bihar Fire Services has no specialized equipment to deal with industrial fires. In view of the growth of Patna both in terms of population and industries, there is need to initiate procurement of equipment that will help meet emergencies. For this, 1 Hazmat Van to be procured for **INR 600 lakh**.
- The population growth and development of Patna will result in increase in multi-storied apartments. The Bihar Fire Services has no 54m working height hydraulic platform and turntable ladder. For this **INR 700 lakh** is being budgeted.
- As a means to tackle fire response in view of the shortage of stations and tenders, there is a plan to install 7 fire hydrants at various locations. For this **INR 70 lakh** is being budgeted.

3 Ensuring Stricter Enforcement of Relevant Rules & Regulations

- Periodic review of the mitigation initiatives taken at identified vulnerable locations of the city will be undertaken.
- Shifting of storages and hazardous units from residential areas: As a matter of policy, storage and processing of hazardous material that can cause fire in residential areas, is normally prohibited. However, looking at the present situation, a conscious effort to encourage such units to move out from the residential area will need a package of incentives and subsequent enforcement. The Fire Services will encourage that this exercise be done in consultation with the Patna Municipal Corporation including a strategy for phased implementation.
- Communication and Public Information Systems:
 - A lot of community education, awareness building, plan dissemination and preparedness exercises have to precede if a meaningful fire hazard mitigation plan is to be made operational. Involvement of citizen's groups, NGOs and CBOs in plan dissemination and preparedness is going to be one of the crucial elements.
 - Additionally, familiarity with warning systems and regular drills to respond to such a system and specific do's and don'ts for the community during the fire situation have also been suggested.
 - Existing public address systems of mosques, temples, railway and bus stations etc. will have to be well coordinated and strengthened furthermore to have an integrated effective public address system to be used for early warning and information dissemination. The organizers of various local festivals should also be suitably involved.
- Implementation of PMC Building Rules: Building Byelaws have been drafted establishing rules for sanction of plans. These will be examined to ensure that compliance with fire mitigation measures is made mandatory.
- Control of Spread of Slums and Informal Squatter Settlements: The slums are highly vulnerable to various disasters including fire hazards due to use of poor construction materials, non conformity with the fire safety measures, weak structural base their vulnerable locations and lack of awareness. In order to reduce such impacts, the integrated improvement of the slums which provides quality secured shelter along with safe drinking water, sanitation and drainage facilities are being taken up by PMC under various government programmes. Efforts to integrate fire mitigation measures will be made.

4 An effective Information Dissemination System:

Gradually the Fire Services should strive to become a beneficiary of the program for country-wide information network system taken up as a national initiative. Under this initiative, the state Emergency Operation Centre will be provided with V-sat

facilities for unfailing connectivity with the rest of India during any disaster. There is need for close coordination with the Disaster Management Department of the Government of Bihar so as to get warning, information and other emergency assistance. Also for efficient co-ordination and effective response, communication amongst government, NGO/private stakeholder departments/organizations is essential and should be given very high priority. Additionally, familiarity with warning systems and regular drills to respond to such a system and specific do's and don'ts for the community during the disaster situation have also been suggested and agencies are to be assigned to undertake such tasks.

The GIS mapping of all infrastructural facilities and utilities in Patna is needed to allow public safety personnel to effectively plan for emergency response, determine mitigation priorities, analyze historical events, and predict future events. GIS can be used to deliver critical information to incident responders upon dispatch or while enroute to an emergency to assist in tactical planning. There is therefore a need to develop a GIS on a scale of 1:1000.

7.0 Summary of Budget for Equipments

EQUIPMENT			ESTIMATED COST
Type	Rate	Quantity	
Fire Tender	Rs. 25,00,000	12	Rs. 300 lakh
Advanced Foam Tender	Rs. 50,00,000	2	Rs. 100 lakh
Hazmat Van	Rs. 6,00,00,000	1	Rs. 600 lakh
Hydraulic platform cum turntable ladder 54m working height	Rs. 7,00,00,000	1	Rs. 700 lakh
Fire hydrant	Rs. 10,00,000	7	Rs. 70 lakh
TOTAL			Rs. 1770 lakh

अधीक्षक, सचिवालय मुद्रणालय,
बिहार, पटना द्वारा प्रकाशित एवं मुद्रित।
बिहार गजट (असाधारण) 108-571+10-डी0टी0पी0।
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